

FIG. 1, native human IL-13 (SEQ ID NO. 1)

G P V P P S T A L R E L I E E L V N I T Q N Q K
A P L C N G S M V W S I N L T A G M Y C A A L E
S L I N V S G C S A I E K T Q R M L S G F C P H
K V S A G Q F S S L H V R D T K I E V A Q F V K
D L L L H L K K L F R E G R F N *

FIG. 2, native murine IL-13 (SEQ ID NO. 2)

G P V P R S V S L P L T L K E L I E E L S N I T Q
D Q T P L C N G S M V W S V D L A A G G F C V A
L D S L T N I S N C N A I Y R T Q R I L H G L C
N R K A P T T V S S L P D T K I E V A H F I T K
L L S Y T K Q L F R H G P F *

FIG. 3, Alignment of several mammalian IL-13 sequences

	*	20	*	40	*	60	*
HUMAN	:	GPVPP-----STALRELIEELVNITQKAPLCLNGSMVWSINITAGM-YCAALES	INVSGCSALEKTQRM				
PIG	:	GPVPPH----STALKELIEELVNITQNQKTPPLCNGSMVWSVNLTISMOYCAALES	LNISDCSAIQKTIQRM				
BOVIN	:	SPVBPS----ATALKELIEELVNITQNQKVPPLCNGSMVWSLNLTSSM-YCAALD	SLISISNCVSIQRTKKM				
DOG	:	SPVTP----SPTLKELIEELVNITQNQ-ASLCNGSMVWSVNLTAGM-YCAALES	LNISDCSAIQRTQRM				
MOUSE	:	GPVPRSVSLPLTLKELIEELSNITQDQ-TPLCNGSMVWSVDIAGG-FCVALD	SLTNISNCNAIYRTQRI				
RAT	:	GPVRRSTSPPVALRELEELSNITQDQKTSILCNSMWWSDILTAGG-FCAALE	SLTNISSCNAIHTRTQRI				
	*	80	*	100	*		
HUMAN	:	LSGFCPHKVSAGQFSSLHVVRTDKIEVAQFVKDILLHLKKLFREGRFN	SEQ ID NO. 1				
PIG	:	LSAUCSHKPPSEQVPGKHIRDTKIEVAQFVKDILLKLFRHG--	SEQ ID NO. 3				
BOVIN	:	LNALCPHKPSAKQVSSEYVRDTKIEVAQFLKDILLRHSRIVFERNERFN	SEQ ID NO. 4				
DOG	:	LKAJCSQKPAAGQISSERSRDTKIEVIQLVKNLLTYVRGVYRHGNFR	SEQ ID NO. 5				
MOUSE	:	LHGLCNRKAP-TTVSS--LPDTKIEVAHFITKLISYTQFLFRHGPF-	SEQ ID NO. 2				
RAT	:	LNGLCNQKAS-DVASS--PPDTKIEVAQFISKLLNYSKQFLFRYGH--	SEQ ID NO. 6				

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FIG. 4, IL-13 sequences from non-human primates

1	S P V P P S T A L K E L I E E L V N I T
1	S P V P R S T A L K E L I E E L V N I T
10	G P V P P Y T A L K E L I E E L V N I T
21	Q N Q K A P L C N G S M V W S I N L T A
21	Q N Q K A P L C N G S M V W S I N L T A
21	Q N Q K A P L C N G S M V W S I N M T A
15	
41	G V Y C A A L E S L I N V S G C S A I E
41	G V Y C A A L E S L I N V S G C S A I E
41	G V Y C A A L E S L I N V S G C S A I E
20	
61	K T Q R M L N G F C P H K V S A G Q F S
61	K T Q R M L N G F C P H K V S A G Q F S
61	K T Q R M L S G F C P H K V S A G Q F S
25	
81	S L R V R D T K I E V A Q F V K D L L V
81	S L R V R D T K I E V A Q F V K D L L V
81	S L L V R D T K I E V A Q F V K D L L R
30	
101	H L K K L F R E G Q F N . cynomolgus IL13 SEQ ID NO.7
101	H L K K L F R E G R F N . rhesus IL13 SEQ ID NO.8
101	H L R K L F H Q G T F N . marmoset IL13 SEQ ID NO.9

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FIG. 5, Immunogen 1 (protein SEQ ID NO. 10, coding DNA SEQ ID NO. 62, non-coding DNA SEQ ID NO. 63)

5

	GGCCCTGTGCCCTCCCTCTAGCGCCCTCAAGGAGCTCATTGAGGAGCTGGCCAACATCACC	60
1	-----+-----+-----+-----+-----+	
	CCGGGACACGGAGGGAGATCGCGGGAGTTCCTCGAGTAACCTCTCGACCGGTTGTAGTGG	
10	G P V P P S S A L K E L I E E L A N I T	
	CAGAACAGAAGGCTCGCTCTGCAATGGCAGCATGGTATGGAGCATCACCTGACAGCT	
61	-----+-----+-----+-----+-----+	120
	GTCTTGGTCTTCCGAGGCGAGACGTTACCGTCGTACCCATACCTCGTAGTTGGACTGTCGA	
15	Q N Q K A P L C N G S M V W S I N L T A	
	GGCATGTACTGTGCAGCCCTGGACTCCCTGATCAACGTGTCAAGGCTGCAGTGCCATCGAG	
121	-----+-----+-----+-----+-----+	180
	CCGTACATGACACGTCGGACCTGAGGGACTAGTTGACAGTCCGACGTACCGTAGCTC	
20	G M Y C A A L D S L I N V S G C S A I E	
	CGGACCCAGAGGATCTTGAGCGCCTCTGCCCGACAAGGTCTCAGCTGGCAGTTTCC	
181	-----+-----+-----+-----+-----+	240
	GCCTGGGTCTCCTAGAACCTCGCGGAAGACGGGGCTTCCAGAGTCGACCCGTCAAAAGG	
25	R T Q R I L S A F C P H K V S A G Q F S	
	AGCTTGCCTGTCGAGACACCAAAATCGAGGTGGCCAGTTGTAACGGACCTGCTCGTA	
241	-----+-----+-----+-----+-----+	300
	TCGAACGCACAGGCTCTGTTAGCTCCACCGGTCAAACATTGCCCTGGACGAGCAT	
30	S L R V R D T K I E V A Q F V T D L L V	
	CATTTAAAGAGACTTTTCGCCAGGGAACGTTCAAC	
301	-----+-----+-----+-----+	336
	GTAAATTCTCTGAAAAAGCGGTCCCTTGCAAGTTG	
35	H L K R L F R Q G T F N	

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FIG. 6, Immunogen 2 (SEQ ID NO. 11),

G	P	V	P	P	S	T	A	L	R	E	L	I	E	E	L	V	N	I	T	Q
N	Q	K	A	P	L	C	N	G	S	M	V	W	S	I	N	L	T	A	G	M
Y	C	A	A	L	E	S	L	I	N	V	S	G	C	S	A	I	E	K	T	Q
R	M	L	G	G	F	C	P	H	K	F	N	N	F	T	V	S	F	W	L	R
V	P	K	V	S	A	S	H	L	E	D	T	K	I	E	V	A	Q	F	V	K
D	L	L	L	H	L	K	K	L	F	R	E	G	R	F	N					

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FIG. 7, Immunogen 3 (SEQ ID NO. 12)

20 FIG. 8, Immunogen 4 (SEQ ID NO. 13)

G	P	V	P	R	S	V	S	L	P	L	T	L	K	E	L	I	E	E	L	S	
N	I	T	Q	D	Q	T	P	L	C	N	G	S	M	V	W	S	V	D	L	A	
A	G	G	F	C	V	A	L	D	S	L	T	N	I	S	N	C	N	A	I	Y	
R	T	Q	R	I	L	H	G	L	C	N	R	K	F	N	N	F	T	V	S	F	
25	W	L	R	V	P	K	V	S	A	S	H	L	E	D	T	K	I	E	V	A	H
	F	I	T	K	L	L	S	Y	T	K	Q	L	F	R	H	G	P	F			

FIG. 9, ImmunoGen 5 (SEQ ID NO. 14)

FIG. 10 Immunogen 6 (SEQ ID NO. 15)

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FIG 11, Immunogen 7 (protein SEQ ID NO. 16, DNA SEQ ID NO. 64)

5 TACGTACATTCCGACGGCTCTTATCCAAAAGACAAGTTGAGAAAATCAATGGCACTTGG
 Y V H S D G S Y P K D K F E K I N G T W
 10 TACTACTTGCAGCTTCAGGCTATATGCTTGAGACCGCTGGAGGAAGCACACAGACGGC
 Y Y F D S S G Y M L A D R W R K H T D G
 15 AACTGGTACTGGTTCGACAACTCAGGCCAAATGGCTACAGGCTGGAAAGAAAATCGCTGAT
 N W Y W F D N S G E M A T G W K K I A D
 20 AAGTGGTACTATTTCAACGAAGAAGGTGCCATGAAGACAGGGCTGGGTCAAGTACAAGGAC
 K W Y Y F N E E G A M K T G W V K Y K D
 25 ACTTGGTACTACTTAGACGCTAAAGAAGGCGCCATGCAATACTCAAGGCTAACTCTAAG
 T W Y Y L D A K E G A M Q Y I K A N S K
 30 TTCAATTGGTATCACTGAAGGCGTCATGGTATCAAATGCCTTATCCAGTCAGCGGACGGA
 F I G I T E G V M V S N A F I Q S A D G
 35 ACAGGCTGGTACTACCTCAAACCCAGACGGAACACTGGCAGACAGGCCAGAAGGCCCTGTG
 T G W Y Y L K P D G T L A D R P E G P V
 CCTCCCTCTAGCGCCCTCAAGGAGCTCATTGAGGAGCTGGCCAACATCACCCAGAACAG
 P P S S A L K E L I E E L A N I T Q N Q
 40 AAGGCTCCGCTTGCAATGGCAGCATGGTATGGAGCATCAACCTGACAGCTGGCATGTAC
 K A P L C N G S M V W S I N L T A G M Y
 TGTGCAGCCCTGGACTCCCTGATCAACGTGTCAGGCTGCAGTGCCTGAGCGGACCCAG
 C A A L D S L I N V S G C S A I E R T Q
 45 AGGATCTTGAGCGCCTCTGCCCGACAAGGTCTCAGCTGGCAGTTTCCAGCTTGCCT
 R I L S A F C P H K V S A G Q F S S L R
 50 GTCCGAGACACCAAAATCGAGGTGGCCCAGTTGTAACGGACCTGCTCGTACATTAAAG
 V R D T K I E V A Q F V T D L L V H L K
 55 AGACTTTTCGCCAGGGAACGTTCAAC
 R L F R Q G T F N

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FIG. 12, Immunogen 8 (protein SEQ ID NO. 17, DNA SEQ ID NO. 65)

5	TCCCTCTCAATTCTTAACATGGCGAACACCCAGATGAAGTCCGATAAAATCATCATCGCG S S H S S N M A N T Q M K S D K I I I A
10	CACAGGGGAGCTAGCGGGTATCTGCCTGAGCACACCCCTGGAGTCCAAGGCTCTGGCGTTC H R G A S G Y L P E H T L E S K A L A F
15	GCCCAGCAGGCTGACTACCTGGAGCAGGACCTGGCGATGACAAAGGATGGCCGCTCGTG A Q Q A D Y L E Q D L A M T K D G R L V
20	GTGATCCATGACCATTCTCGACGGACTGACCGACGTCGCCAAGAAGTTCCCCACCGC V I H D H F L D G L T D V A K K F P H R
25	CATAGGAAGGACGGGAGGTATTACGTGATTGACPTCACCCCTCAAGGAGATCCAGAGCCTG H R K D G R Y Y V I D F T L K E I Q S L
30	GAGATGACCGAGAACTTCGAGACCGGCCCTGTGCCTCCCTAGGCCCTCAAGGAGCTC E M T E N F E T G P V P P S S A L K E L
35	ATTGAGGAGCTGCCAACATCACCCAGAACAGAACAGAGGCTCCGCTCTGCAATGGCAGCATG I E E L A N I T Q N Q K A P L C N G S M
40	GTATGGAGCATAACCTGACAGCTGGCATGTACTGTGCAGCCCTGGACTCCCTGATCAAC V W S I N L T A G M Y C A A L D S L I N
45	GTGTCAGGCTGAGTGCACCCAGGGACCCAGAGGATCTGAGGCCCTCTGCCGCAC K V S A G Q F S S L R V R D T K I E V A

CAGTTTGTAAACGGACCTGCTCGTACATTAAAGAGACTTTTCGCCAGGGAACGTTCAAC
Q F V T D L L V H L K R L F R Q G T F N

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FIG. 13, Immunogen 9 (protein SEQ ID NO. 18, DNA SEQ ID NO. 66)

5 TTTAATAATTTACCGTTAGCTTGGTGCCTAAAGTATCTGCTAGTCATT
F N N F T V S F W L R V P K V S A S H L

10 GAAGGCCCTGGCTCCCTCTAGGCCCTCAAGGAGCTCATGGAGGCTGGCAAACATC
E G P V P P S S A L K E L I E E L A N I

15 ACCCAGAACAGAACGGCTCCGCTCTGCAATGGCAGCATGGTATGGAGCATCAACCTGACA
T Q N Q K A P L C N G S M V W S I N L T

20 GCTGGCATGTACTGTGCAGCCCTGGACTCCCTGATCACGTGTCAGGCTGCAGTGCCATC
A G M Y C A A L D S L I N V S G C S A I

25 GAGCGGACCCAGAGGATCTTGAGCGCCCTCTGCCCGACAAGGTCTCAGCTGGCAGTT
E R T Q R I L S A F C P H K V S A G Q F

30 TCCAGCTTGGTGTCCGAGACACCAAAATCGAGGTGGCCAGTTGTAACGGACCTGCTC
S S L R V R D T K I E V A Q F V T D L L

GTACATTTAAAGAGACTTTTCGCCAGGGAACGTTCAAC
V H L K R L F R Q G T F N

FIG. 14, Immunogen 10 (SEQ ID NO. 19)

5 TTAATAATTTACCGTTAGCTTGGTTGCGTGTCTAAAGTATCTGCTAGTCATTAA
-----+-----+-----+-----+-----+-----+
F N N F T V S F W L R V P K V S A S H L

10 GAAGGCCCTGTGCCTCCCTAGGCCCTCAAGATTCTCATTGAGGAGCTGGCCAACATC
-----+-----+-----+-----+-----+-----+
E G P V P P S S A L K I L I E E L A N I

15 ACCCAGAACAGAAGGCTCCGCTTGCAATGGCAGCATGGTATGGAGGCATCACCTGACA
-----+-----+-----+-----+-----+-----+
T Q N Q K A P L C N G S M V W S I N L T

20 GCTGGCATGTACTGTGCAGCCCTGGACTCCCTGATCAACGTGTCAGGCTGCAGTGCCATC
-----+-----+-----+-----+-----+-----+
A G M Y C A A L D S L I N V S G C S A I

25 GAGCGGACCCAGAGGATCTTGAGCGCCTCTGCCGCACAAGGTCTCAGCTGGCAGTT
-----+-----+-----+-----+-----+-----+
E R T Q R I L S A F C P H K V S A G Q F

30 TCCAGCTTGCCTGTCCGAGACACCAAAATCGAGGTGGCCAGTTGTAACGGACCTGCTC
-----+-----+-----+-----+-----+-----+
S S L R V R D T K I E V A Q F V T D L L

 GTACATTTAAAGAGACTTTCGCCAGGGAACGTTCAAC
-----+-----+-----+-----+
V H L K R L F R Q G T F N

FIG 15, Immunogen 11 (SEQ ID NO. 20)

5 G P V P P S S A L K E L I E L A N I T Q N Q K A P L C N G S M V
W S I N L T A G M Y C A A L D S L I N V S G C S A I E R T Q R I L
S A F C P H K V S A G Q F S S L H V R D T K I E V A Q F V T D L L
V H L K R L F R Q G R F N

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FIG. 16, Immunogen 12 (SEQ ID NO. 21)

G P V P P S T A L K E L I E L V N I T Q N Q K A P L C N G S M V
W S I N L T A G M Y C A A L D S L I N V S G C S A I E R T Q R I L
S A F C P H K V S A G Q F S S L R V R D T K I E V A Q F V T D L L
15 V H L K K L F R Q G T F N

FIG. 17, Immunogen 13 (SEQ ID NO. 22)

20 G P V P P S S A L R E L I E E L A N I T Q N Q K A P L C N G S
M V W S I N L T A G M Y C A A L E S L I N V S G C S A I D K T
Q R M L S A F C P H K V S A G Q F S S L H V R D T K I E V A Q
F V K D L L V H L K R L F R D G R F N

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Figure 18, protein SEQ ID NO. 23, DNA SEQ ID NO. 68

5 GGGCCGGTGCCAAGATCTGTGTCCTCCCTCTGACCCCTAGGGAGCTATTGAGGAGCTG 60
 1 -----+-----+-----+-----+-----+-----+
 G P V P R S V S L P L T L R E L I E E L

10 GTCAACATCACACAAGACCAGACTCCCCTGTGCAACGGCAGCATGGTATGGAGTGTGGAC 120
 61 -----+-----+-----+-----+-----+-----+
V N I T Q D Q T P L C N G S M V W S V D

15 CTGGCCGCTGGCGGGTACTGTGCAGCCCTGGAATCCCTGACCAACATCTCCAATTGCAAT 180
 121 -----+-----+-----+-----+-----+-----+
L A A G G Y C A A L E S L T N I S N C N

20 GCCATCGAGAAGACCCAGAGGATGCTGGCGGACTCTGTAACCGCAAGGCCCCCACTACG 240
 181 -----+-----+-----+-----+-----+-----+
A I E K T Q R M L G G L C N R K A P T T

25 GTCTCCAGCCTCCCCGATACCAAAATCGAGGTGGCCCAGTTGTAAAGGACCTGCTCAGC 300
 241 -----+-----+-----+-----+-----+-----+
V S S L P D T K I E V A Q F V K D L L S
 30 TACACAAAGCAACTGTTGCCACGGCCCCCTCTAA 336
 301 -----+-----+-----+-----+-----+-----+
Y T K Q L F R H G P F *

35